

AMENDMENTS TO THE SPECIFICATION:

Please amend the following paragraphs as follows:

Pages 2-3

[0004] Flat heat exchangers made of steel are available on the market that are made from two preshaped walls spot-welded to one another. This production process requires steel or special steel (ferrous metals) as material. However, ferrous metals are not optimal heat conductors. If flat heat exchangers are to be produced from copper, which in terms of heat conduction is the ideal material, recourse must be had to riveting and soldering. Riveting, however, has the advantage disadvantage that both metal sheets are perforated at the riveting points, and tightness at these points is attainable, if at all, only at great effort and expense. Leaks are quite likely later on as well, for instance from thermal expansion and contraction of the metal sheets. It is almost impossible to make soft-soldered points inside the surface of the heat exchanger, and they withstand only very slight tensile stresses. Hard soldering, conversely, anneals the material and makes it even softer.

Pages 3 and 4

[0005] A compression-molded connection (such as TOX connection) is known with which metal sheets of all kinds can be joined together. Primarily, this compression-molded connection replaces spot welding in the automotive industry, but it also replaces riveting in aircraft construction. By an upsetting-pressing operation, metal sheets are joined

absolutely tightly and without surface damage or penetration. With a simple round male die, the sheets to be joined are first pressed together into a female die. Upon a further buildup of force, the material toward the male die is forced, inside the material toward the female die, to flow outward behind the material toward the female die. This is made possible in that the positively displaced material in the female die is given a free space in the female die into which it can escape. Disadvantageously, Advantageously, such a connection point can even be pressed flat again. Similar positive-engagement compression-molded connections are also achieved using a modified technique.

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[0015] Advantageously, the heat exchanger is soldered annularly all the way around before the compression-molded connection is made. As a result, the change in length of the sheet (with copper, the expansion is in the range of 1.3 to 1.5 mm per 100°C 100°C of temperature difference and running meter) as a consequence of material heating up to 270°C 270°C in soldering can be prevented from causing separations of peripheral compression-molded connections.

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[0042] The compression-molded connection 11, which is shown in a schematic section in Fig. 1, is in accordance with the prior art and was developed as an alternative to spot welding, especially for the automotive industry. With compression-molded

connections 11 of this kind, metal sheets 13, 15 resting flat on one another can be joined inside within only a few seconds at many places. The connection 11 transmits tension and shear forces. It is produced by pressing compression molds against the metal sheets 13, 15 on both sides. The sheet 13 is everted downward into a counterpart mold by means of the compression mold acting from above in Fig. 1. The lower sheet 15 is made to bulge outward at the bottom simultaneously with the upper sheet 13. The counterpart mold of the downward-acting compression mold has an annular indentation and a central raised portion on the bottom of the mold. The material compressed into the counterpart mold is therefore pressed into this annular indentation and forms an annular thickened portion 17. Several variants of methods for making connections by compression molding with which a comparable result is attained are known.

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[0047] Fig. 4 shows a collector or heat exchanger element 33, which is made from a pipe. The edges 35 are correspondingly formed by a bending edge of the pipe. The front and rear wall surfaces between the edges 35 are fastened to one another with many compression-molded connections 11. The edges 37 on the ends of the pipe are each closed off by a respective end piece 39. Supply and discharge lines 27 are connected to the end piece 39, which for instance is a deep-drawn sheet-metal part. The compression-molded connections 11 form a triangular grid. Around each connection point 11, six further connection points 11 are disposed in a practically regular hexagon. If the grid is rotated by

a further ~~30E~~ 30°, for instance, then the flow through the hollow body 33 no longer takes place in conduits that extend rectilinearly from one end to the other; instead, the heat transfer medium must wind around the fastening points 11. This produces better mixing of the cooler medium with the hotter medium.

Pages 24 and 29

[0056] The compression-molded connection 11 in Fig. 9 is additionally equipped with parts 80, 82 that secure the connection. These parts 80, 82 are of brass, since it is harder than copper and has a lower coefficient of temperature-dependent expansion. A disk 80 is press-fitted into the stamped-in indentation in the compression-molded connection 11, and a ring 82 surrounds the eversion, or toothed place, pressed into the female die, of the compression-molded connection 11. The disk and the ring together secure the interlocking between the indentation edge 18 and the crown 21. This stabilization of the compression-molded connection allows higher loading in terms of temperature fluctuation and assures a stronger connection force. It can expediently be employed in high-pressure heat exchangers or in heat exchangers with temperature differences.
